ESTIMATING THE LONG TERM PATTERN OF WATER STREAMFLOW WITH CLIMATE CHANGE ADAPTATION

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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this thesis and in my opinion, this thesis is adequate in terms of scope and quality for the award of the Bachelor Degree of Civil Engineering with Hons.

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I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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LIST OF ABBREVIATIONS

SDSM	Statistical Downscaling Model
DD	Dynamical Downscaling
SD	Statistical Downscaling
GCM	Global Circulation Model
RCM	Regional Circulation Model
NCEP	National Centers for Environmental Prediction
MMD	Malaysia Meteorological Department
DID	Department of Irrigation and Drainage
MAE	Mean Absolute Error
DAT	predictand
OUT	output
PAR	parameter
MOS	model output statistic
mlsp	mean sea level pressure
p_f	surface airflow strength
p_u	surface zonal velocity
p_v	surface meridional velocity
p_z	surface vorticity
p_th	surface wind direction
p_zh	surface divergence
p5_f	500hpa airflow strength
p5_u	500hpa zonal velocity
p5_v	500hpa meridional velocity
p5_z	500hpa vorticity
p500	500hpa geopotential height
p5th	500hpa wind direction
p5zh	500hpa divergence
p8_f	850hpa airflow strength
p8_u	850hpa zonal velocity
p8_v	850hpa meridional velocity
p8_z	850hpa vorticity
p850	850hpa geopotential height
p8th	850hpa wind direction
p8zh	850hpa divergence

r500	relative humidity at 500hpa
r850	relative humidity at 850hpa
rhum	near surface relative humidity
shum	surface specific humidity
temp	mean temperature